CLAIMS

1. Power factor correction device for switching power supplies, comprising a converter (20) and a control device (100; 200; 300) coupled with said converter (20) in such a way as to obtain from a input network alternated voltage (Vin) a direct regulated voltage (Vout) at the output terminal, said converter (20) comprising a power transistor (M) and said control device (100; 200; 300) comprising an error amplifier (3) having in input at the inverting terminal a first signal (Vr) proportional to said regulated voltage (Vout) and at the non-inverting terminal a voltage reference (Vref), at least one capacitor (C) having a first terminal and a second terminal which are coupled respectively with the inverting terminal and the output terminal (31) of said error amplifier (3) and a driving circuit (4-6) of said power transistor (M) which is coupled with the second terminal of said capacitor (C), characterized in that said control device (100; 200; 300) comprises interruption means (SW) placed between the output terminal (31) of said error amplifier (3) and the second terminal of said capacitor (C) and control means (103; 103, 301-303) able to activate said interruption means (SW) so as to control the interruption of the connection between the error amplifier (3) and said driving circuit (4-6) for at least one time period (T) lower than the time period (Tciclo) in which said control device (100; 200; 300) is operative.

2. Device according to claim 1, characterized in that said control device (100; 200; 300) comprises comparison means (101) adapted to compare the value of said first signal (Vr) with a reference value (Vth), said comparison means (101) being able to send a signal (Fault) adapted to deactivate said power transistor (M) and said control device (100; 200; 300) when the connection between said error amplifier (3) and said drive circuit (4-6) is interrupted and when the value of said first signal (Vr) is lower than the value of said reference signal (Vth).

3. Device according to claim 1 or 2, characterized in that said at least

one time period (T) is constituted by a prefixed duration time period for each operation cycle (Tciclo) of the device (100; 200).

4. Device according to claim 3, characterized in that said converter (20) comprises a rectifier diode circuit (2) and said driving circuit (4-6) comprises a multiplier (4) coupled with said error amplifier (3) and which is adapted to multiply the output signal (Se) of said error amplifier (3) and of said capacitor (C) and a signal (Vi) proportional to the output signal of said rectifier diode circuit (2), a comparator (5) able to compare an output signal (Sm) of the multiplier (4) with a further signal (Srs) proportional to the current flowing in said power transistor (M), said control means (103) being connected with the output of said comparator (5) and being activated when the value of said output signal (Sm) of the multiplier (4) is equal to the value of said further signal (Srs) proportional to the current flowing in said power transistor (M).

5. Device according to claim 4, characterized in that said control means (103) are constituted by a monostable multivibrator that, when it is activated, is able to send a pulse signal to activate said interruption means (SW).

6. Device according to claim 5, characterized by comprising sampling means (201) connected with said multiplier (4), with the second terminal of the capacitor (C) and with the output of said comparator (5) and which are adapted to memorize the value of the output signal (Se) of the error amplifier (3) and of the capacitor (C) when said control means (103) are activated.

7. Device according to claim 1 or 2, characterized in that said at least one time period (T) is constituted by a prefixed duration time period and occurs when the value of the output signal (Se) of the error amplifier (3) and of the capacitor (C) is higher than a prefixed value.

8. Device according to claim 7, characterized in that said converter (20) comprises a input stage comprising a rectifier diode circuit (2) and said driving circuit (4-6) comprises a multiplier (4) coupled with said error amplifier (3) and which is adapted to multiply the output signal (Se) of said

error amplifier (3) and of said capacitor (C) and a signal (Vi) proportional to the output signal of said rectifier diode circuit (2), a comparator (5) able to compare an output signal (Sm) of the multiplier (4) with a further signal (Srs) proportional to the current flowing in said power transistor (M), said control means (103, 301-303) comprising a monostable multivibrator (103) connected with the output of said comparator (5) and which is activated when the value of said output signal (Sm) of the multiplier (4) is equal to the value of said further signal (Srs) proportional to the current flowing in said power transistor (M) and detecting means (301) able to detect the value of the current flowing through said capacitor (C) and to compare said value with a current reference so as to send an output signal when said current is higher than said current reference, said output signal of said detecting means being able to activate said interruption means (SW) when said monostable multivibrator (103) is activated.

9. Device according to claim 6 or 8, characterized in that said control device (100; 200; 300) comprises comparison means (101) adapted to compare the value of said first signal (Vr) with a reference signal (Vth), said comparison means (101) being able to send a signal (Fault) adapted to deactivate said power transistor (M) and said control device (100; 200; 300) when the connection between said error amplifier (3) and said driving circuit (4-6) is interrupted and when the value of said first signal (Vr) is lower than the value of said reference signal (Vth), an AND gate (102) having in input the output signal of said monostable multivibrator (103) and the output signal of said comparison means (101), the output signal of said AND gate (102) being the set signal of a set-reset flip-flop (104) the output signal of which is said signal (Fault) adapted to deactivate said power transistor (M) and said control device (100; 200; 300).

10. Device according to claim 9, characterized in that said control means (103; 301-303), said interruption means (SW) and said comparison means (101) are integrated in the same chip where the control device (100; 200;

300) is formed.